TECHNICAL REVIEW DOCUMENT
For
RENEWAL TO OPERATING PERMIT 96OPWE154

Public Service Company – Ft. Lupton Combustion Turbines
Weld County
Source ID 1230014

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Revised March and June 2008

I. Purpose:

This document will establish the basis for decisions made regarding the applicable requirements, emission factors, monitoring plan and compliance status of emission units covered by the renewed operating permit proposed for this site. The current Operating Permit was issued July 1, 2002. The expiration date for the permit was November 1, 2007. However, since a timely and complete renewal application was submitted, under Colorado Regulation No. 3, Part C, Section IV.C all of the terms and conditions of the existing permit shall not expire until the renewal operating permit is issued and any previously extended permit shield continues in full force and operation. This document is designed for reference during the review of the proposed permit by the EPA, the public, and other interested parties. The conclusions made in this report are based on information provided in the renewal application submitted May 31, 2006, comments on the draft permit and technical review document received on April 15, 2008, previous inspection reports and various e-mail correspondence, as well as telephone conversations with the applicant. Please note that copies of the Technical Review Document for the original permit and any Technical Review Documents associated with subsequent modifications of the original Operating Permit may be found in the Division files as well as on the Division website at http://www.cdphe.state.co.us/ap/Titlev.html. This narrative is intended only as an adjunct for the reviewer and has no legal standing.

Any revisions made to the underlying construction permits associated with this facility made in conjunction with the processing of this operating permit application have been reviewed in accordance with the requirements of Regulation No. 3, Part B, Construction Permits, and have been found to meet all applicable substantive and procedural requirements. This operating permit incorporates and shall be considered to be a combined construction/operating permit for any such revision, and the permittee shall be allowed to operate under the revised conditions upon issuance of this operating permit without applying for a revision to this permit or for an additional or revised construction permit.

II. Description of Source

This facility is classified as an electric services facility under the Standard Industrial Classification 4911. This facility is an unmanned electric power generating station that

consists of 2 simple cycle combustion turbines that can generate up to 100 MW of power. Typically this facility is used to service peak electrical load demands. The turbines are capable of burning natural gas, Nos. 1 and/or 2 fuel oil or combination. Based on the information available to the Division and provided by the applicant, it appears that no modifications to these significant emission units has occurred since the original issuance of the operating permit.

Note that neither turbine is equipped with a control device and therefore the Compliance Assurance Monitoring (CAM) requirements do not apply to these units.

The facility is located approx. 2 miles east of Ft. Lupton in Weld County. This facility is located in an area classified as attainment for all pollutants except ozone. It is classified as non-attainment for ozone and is part of the 8-hr Ozone Control Area as defined in Regulation No. 7, Section II.A.16.

Rocky Mountain National Park, a federal class I designated area, is within 100 km of this facility.

The summary of emissions that was presented in the Technical Review Document (TRD) for the original permit issuance has been modified to update actual emissions. The emissions in the table below represent emissions from both turbines together, no other equipment is included in this total.

Pollutant	Potential to Emit – 100% Natural Gas	Potential to Emit – 100% Nos. 1 and/or 2 Fuel Oil	Actual Emissions – Combination[3]
PM[1]	580	575	0.1
PM_{10}	580	575	0.1
SO_2[2]	4,644	4,597	0.3
NO_X	2,032	5,057	9.5
CO	528	19	2.4
VOC	13.4	2.4	0.10
Total HAPS	5.94	2.13	
Highest Single HAP[4]	4.12	1.61	

[1]PTE, when burning any fuel, is based on the PM limit (0.1 lbs/mmBtu) x design heat rate x 8760 hrs/yr. Heat input when burning NG is 662.6 mmBtu/hr and when burning DO is 656 mmBtu/hr.
[2]PTE, when burning Nos. 1 and/or 2 fuel oil, is based on the Reg 1 SO_2 limit (0.8 lbs/mmBtu) x design heat rate x 8760 hrs/yr.
[3]Actual emissions identified in the table are based on natural gas consumption only, although the turbines may burn either natural gas, Nos. 1 and/or 2 fuel oil, or combination.
[4]Highest single HAP is formaldehyde.

Potential to emit for the turbines is based on the information identified in the table and the maximum hourly fuel consumption rate, AP-42 emission factors and 8760 hrs/yr of

operation. Actual emissions are based on APENs submitted on April 27, 2004 (2003 data).

In the above table, the breakdown of HAP emissions by fuel burned and individual HAPs is provided on page 9 of this document. HAPS emissions are based on the maximum hourly fuel consumption rate, 8760 hrs/yr of operation and AP-42 emission factors (Section 3.1, dated 4/00, Tables 3.1-3 and 3.1-4).

MACT Requirements

Case-by-Case MACT - 112(j) (40 CFR Part 63 Subpart B §§ 63.50 thru 63.56)

Under the federal Clean Air Act (the Act), EPA is charged with promulgating maximum achievable control technology (MACT) standards for major sources of hazardous air pollutants (HAPs) in various source categories by certain dates. Section 112(j) of the Act requires that permitting authorities develop a case-by-case MACT for any major sources of HAPs in source categories for which EPA failed to promulgate a MACT standard by May 15, 2002. These provisions are commonly referred to as the "MACT hammer".

Owners or operators that could reasonably determine that they are a major source of HAPs which includes one or more stationary sources included in the source category or subcategory for which the EPA failed to promulgate a MACT standard by the section 112(j) deadline were required to submit a Part 1 application to revise the operating permit by May 15, 2002. The source submitted a notification indicating that the Ft. Lupton facility was a **NOT** a major source for HAPS, with equipment under the combustion turbine source category.

The Division presumes the PSCo's minor source determination is based on using AP-42 emission factors to estimate potential HAP emissions. Initially the Division conducted its own analysis using the worst case emission factors from AP-42, the California Air Toxics Emission Factor (CATEF) database and a memo dated August 23, 2003 from Melanie Taylor, Alpha-Gamma Technologies, Inc. to Sims Roy, EPA OPQPS ESD Combustion Group, titled "Revised HAP Emission Factors for Stationary Combustion Turbines". Based on this analysis, the facility would be considered a major source for HAPS, due to formaldehyde emissions from the turbines when burning distillate (diesel) oil, using an emission factor from the EPA Memo.

According to the final MACT rule for Stationary Combustion Turbines (published in the federal register on March 5, 2004), EPA indicates that "We believe that the emission factors presented in the memorandum provide the most accurate information on stationary combustion turbine emission factors" (1st column, 2nd paragraph on page 10518). However, in their April 15, 2008 comments on the draft permit, the source indicated that they believed the emission factors from the EPA Memo incorrectly estimated formaldehyde emissions from the turbine when burning diesel oil. The Division agrees that the formaldehyde emission factor for diesel fuel predicted by the EPA Memo results in really high emissions; therefore, in response to the source's

comments on the draft permit, the Division conducted further research on the emission factors used in the EPA Memo.

The Division had used the emission factors in the EPA Memo for diffusion flame turbines > 50 MW at all loads using both natural gas and diesel oil as fuel in our analysis. In reviewing this memo, it appears that the emission factors are based on very few tests (4 for natural gas units, with only 1 test on a turbine > 50 MW and 2 for diesel fuel oil, with none on turbines > 50 MW). In addition, the Division looked at EPA's combustion turbine emissions database and for large turbines (> 50 MW) that were not lean pre-mix unit we found more test results than were apparently used in the EPA Memo. The average emission rate for all test results for the diesel-fired turbines was much lower than the emission factor included in the EPA Memo. The average emission rate for the large turbines that are not lean pre-mix for both natural gas and diesel-fired units was comparable to AP-42. Therefore, the Division considers that estimating HAP emissions using the AP-42 emission factors is appropriate and that the facility is **NOT** a major source for HAPS.

Although the facility is not a major source for HAPS, the EPA has been promulgating rules for area sources (sources that are not major), those requirements that could potentially apply to this facility are discussed below:

Paint Stripping and Miscellaneous Surface Coating at Area Sources (40 CFR Part 63 Subpart HHHHHH)

The final rules for paint stripping and miscellaneous surface coating were published in the federal register on January 9, 2008 and apply to area sources that perform paint stripping operations using methylene chloride, spray application of coatings to motor vehicles and mobile equipment and spray application of coatings that contain the target HAPS (chromium, lead, manganese, nickel or cadmium). As indicated in 40 CFR Part 63 § 63.11170(a)(2) and (3), spray applications (to motor vehicles and using coatings that contain the target HAPS) that meet the definition of facility maintenance are not subject to the requirements in this rule. The Division considers that any spray coatings of motor vehicles and mobile equipment and spray application of coatings that contain the target HAP at this facility would meet the definition of facility maintenance. The source indicated that none of the paint stripping chemicals used at the facility contain methylene chloride; therefore, the provisions in 40 CFR Part 63 Subpart HHHHHH do not apply.

III. Discussion of Modifications Made

Source Requested Modifications

The source's requested modifications identified in the renewal application were addressed as follows:

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The Responsible Official has been changed as indicated in the source's April 15, 2008 comments on the draft permit.

Appendix A

In their April 15, 2008 comments on the draft permit, the source requested the following change so the insignificant activity list.

- Under "storage tanks with annual throughput less than 400,000 gal", both the 10,000 and 20,000 gal underground tanks were removed since they have been retired and placed out of service.

- Under "not an emissions source and/or not regulated/reportable emissions", the description of the water tank was revised to indicate that there are two water tanks.

Other Modifications

In addition to the source requested modifications, the Division has included changes to make the permit more consistent with recently issued permits, include comments made by EPA on other Operating Permits, as well as correct errors or omissions identified during inspections and/or discrepancies identified during review of this renewal.

The Division has made the following revisions, based on recent internal permit processing decisions and EPA comments to the Ft. Lupton Combustion Turbines Renewal Operating Permit. These changes are as follows:

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- Monitoring and compliance periods and report and certification due dates are shown as examples. The appropriate monitoring and compliance periods and report and certification due dates will be filled in after permit issuance and will be based on permit issuance date. Note that the source may request to keep the same monitoring and compliance periods and report and certification due dates as were provided in the original permit. However, it should be noted that with this option, depending on the permit issuance date, the first monitoring period and compliance period may be short (i.e. less than 6 months and less than 1 year).

General

- The Reg 3 citations were revised throughout the permit, as necessary, based on the recent revisions made to Reg 3.

Section I – General Activities and Summary

- Revised the description under Condition 1.1 to address the attainment status of the area in which the facility is located.

- Revised the language in Condition 1.4 to include Section IV, Conditions 3.g (last paragraph) and 3.d. Note that Section IV, Condition 3.d (affirmative defense provisions for excess emissions during malfunctions) is state-only until approved by EPA in the SIP.

- Corrected the reference to "Condition 21" to indicate "Condition 22" in the first sentence in Condition 1.5.

- Made minor revisions to the language in Condition 3.1 to be more consistent with other permits. In addition, revised this condition to address the attainment status of the area in which the facility is located.

- Added a column to the Table in Condition 6.1 for the startup date of the equipment.

- Revised the description in the Table in Condition 6.1 to indicate the correct heat input rate for the turbines (662.6 lb/mmBtu for NG and 656 lb/mmBtu for DO) and to remove the storage tank.

Sections II.1 and 2 – Turbines burning either only natural gas or Nos. 1 and/or 2 fuel oil

- Based on EPA's response to a petition on another Title V operating permit, minor language changes were made to various permit conditions (both in the table and the text) to clarify that only natural gas and/or Nos. 1 and/or 2 fuel oil are used as fuel for permit conditions that rely on fuel restriction for the compliance demonstration.

Section II.3 – Turbines burning a combination of fuels (natural gas and/or Nos. 1 and/or 2 fuel oil)

- Minor language changes were made to indicate that only natural gas and/or Nos. 1 and/or 2 fuel oil may be burned.

Section II.4 – 216,000 Gallon Diesel Fuel Storage Tank

Effective October 15, 2003, revisions were made to NSPS Subpart Kb and under these revisions tanks that have a capacity of 39,889 gallons or greater and storing liquids with a maximum true vapor pressure less than 3.5 kPa (approx. 0.5 psia) are exempt from the provisions of 40 CFR Part 60 Subpart Kb. Since the emissions from the tank are below APEN de minimis levels and since the tank is no longer subject to any federal NSPS requirements, neither a construction permit or APEN is required for this tank and the tank can be considered an insignificant activity. No construction permit was issued for this tank, it was directly incorporated into the Title V permit via a minor modification (issued March 4, 2003). Therefore, the tank is included in Appendix A of the permit as an insignificant activity.

Ozone Early Action Compact Requirements (Reg 7)

The Division entered into an early action compact to delay being re-designated as a non-attainment area for the 8-hour ozone standard. The early action compact requires

controls to reduce VOC emissions in the 8-hour ozone control area. The early action compact VOC control requirements have been included in Colorado Regulation No. 7 and those requirements became effective, on a state-only basis, on May 31, 2004 and on a state and federal basis effective on September 19, 2005 (EPA approval published in the August 19, 2005 federal register). Although the 8-hour ozone control area has since been re-designated as a non-attainment area, the provisions for the 8-hour ozone control area still apply. The VOC control requirements apply to oil and gas operations (Colorado Regulation No. 7, Section XII) and stationary internal combustion engines (Colorado Regulation No. 7, Section XVI) located in the 8-hour ozone control area. Since the facility is not involved in oil and gas operations, only the stationary internal combustion engine requirements potentially apply to this facility. There are no internal combustion engines identified in Section II of the permit. In addition, no internal combustion engines have been identified in the insignificant activity list in Appendix A of this permit. Therefore, none of the Reg 7 8- hour ozone control requirements apply to emission units at this facility.

Section III – Permit Shield

- The citation for the permit shield has been revised to make corrections (Part C, Section XIII, should be XIII.B), to reflect revisions and restructuring of Reg 3 and to remove Reg 3, Part C, Section V.C.1.b and C.R.S. § 25-7-111(2)(I) since they don't address the permit shield.

- The justification for the shield (Section 1) for the Reg 7 requirements (except for Section V, Paragraphs VI.B.1 and 2 and Subsection VII.c) was revised. These requirements do not currently apply since they only apply to the Denver 1-hr ozone attainment maintenance area and any non-attainment area for the 1-hr ozone standard. The area in which the facility is located is non-attainment for the 8-hr ozone standard.

- Since Reg 3 has been revised, the reference to the PSD regulations was revised in Section 1 of the permit shield.

Section IV – General Conditions

- The upset requirements in the Common Provisions Regulation (general condition 3.d) were revised December 15, 2006 (effective March 7, 2007) and the revisions were included in the permit. Note that these provisions are state-only enforceable until approved by EPA into Colorado's state implementation plan (SIP).

- Replaced the reference to "upset" in Condition 5 (emergency provisions) and 21 (prompt deviation reporting) with "malfunction".

- General Condition No. 21 (prompt deviation reporting) was revised to include the definition of prompt in 40 CFR Part 71.

- Replaced the phrase "enhanced monitoring" with "compliance assurance monitoring" in General Condition No. 22.d.

Appendices

- Appendix B and C were replaced with latest version. In addition, the tables were revised to indicate the correct heat input rate for the turbines (662.6 lb/mmBtu for NG and 656 lb/mmBtu for DO) and to remove the storage tank.

- Changed the mailing address for EPA in Appendix D.

Hazardous Air Pollutant Emissions

AP-42 Emission Factors[1]

Pollutant	Natural Gas		Distillate Fuel	
	Emission Factor (lb/mmBtu)	Emissions (tons/yr)	Emission Factor (lb/mmBtu)	Emissions (tons/yr)
Acetaldehyde	4.00E-05	2.32E-01		
Acrolein	6.40E-06	3.71E-02		
Benzene	1.20E-05	6.97E-02	5.50E-05	3.16E-01
Ethylbenzene	3.20E-05	1.86E-01		
Formaldehyde	7.10E-04	4.12E-00	2.80E-04	1.61E-00
Naphthalene			3.50E-05	2.01E-01
Propylene Oxide	2.90E-05	1.68E-01		
Toluene	1.30E-04	7.55E-01		
Xylenes	6.40E-05	3.71E-01		
Total		**5.94E-00**		**2.13E-00**

[1]from AP-42, Section 3.1 (dated 4/00), Tables 3.1-3 and 3.1-4